

CLAIMS

1. An aircraft fuselage, which fuselage structure, in addition to other structural elements that are components of the mechanical strength bracing of the fuselage and help absorb its forces, encompasses an exterior skin (2) consisting of various respective materials, which are designed to be resistant to shear, and incorporated as a bearing element into the mechanical strength bracing to absorb and transfer the forces and torques acting thereupon, wherein the exterior skin (2) is fabricated from a burn-through resistant semi-finished material consisting of a non-metallic material or a fireproof metallic material, wherein the semi-finished material can be molded through further processing.
2. An aircraft fuselage, which fuselage structure, in addition to other structural elements that are components of the mechanical strength bracing of the fuselage and help absorb its forces, encompasses an exterior skin (2) consisting of various respective materials, which are designed to be resistant to shear, and incorporated as a bearing element into the mechanical strength bracing to absorb and transfer the forces and torques acting thereupon, wherein the exterior skin (2) is realized by a semi-finished material combining a non-metallic material and a metallic material, and the produced exterior skin product is a hybrid material that can be molded and joined through further processing.
3. The aircraft fuselage of claim 2, wherein the material combination is achieved by means of a non-metallic material consisting of carbon and/or glass fibers and/or ceramic fibers, and a metal material, which consists of an

aluminum or a titanium or an aluminum or titanium alloy, coated by a resin layer or imbedded in a resin.

4. The aircraft fuselage of one of claims 2 and 3, wherein the obtained exterior skin product with this material combination has a sandwich design, which is adhesively bonded with a composite material and the mentioned metal material in layers, which yields a burn-through resistant behavior of the exterior skin relative to long-term exposure to flames from a fire.
5. The aircraft fuselage of one of claims 1 and 2, wherein the exterior skin (2) is manufactured using a non-metallic material consisting of a carbon fiber material or a glass fiber material or a ceramic fiber material or a silicate fiber material.
6. The aircraft fuselage of claim 5, wherein a material combination comprised of the various non-metallic materials is taken into account when manufacturing the exterior skin (2).
7. The aircraft fuselage of one of claims 1 and 2, wherein the non-metallic material is realized with plastics reinforced with glass or plastic fibers
8. The aircraft fuselage of claim 1, wherein the fireproof, metallic is realized with a titanium or a titanium alloy.
9. The aircraft fuselage of one of claims 3 and 7, wherein the material combination is realized with a GFK or CFK material and aluminum or titanium or alloys thereof.

10. The aircraft fuselage of claim 4, wherein the composite material is a heatproof composite material, whose behavior also exhibits a temperature resistance and tensile strength.
- 5 11. The aircraft fuselage of claim 10, wherein the heatproof material is realized with carbon fibers, coated with material from a nitride or carbide bond, and a metal or ceramic material, into which the coated carbon fibers are imbedded.
- 10 12. The aircraft fuselage of one of claims 4 and 10, wherein the sandwich design is realized using a glare material, whose burn-through behavior is high.
- 15 13. The aircraft fuselage of one of claims 1 and 2, wherein the outer surface of the exterior skin (2), which is exposed to weathering from the outside environment of an aircraft, is joined with a plate-like planking (5), which is realized with the burn-through resistant semi-finished product using a non-metallic material or a fireproof metallic material, or with the material combination of the semi-finished product using a non-metallic material and a metal material, whose produced exterior skin product is a hybrid material, wherein the planking can also be molded and joined through further processing.
- 20 14. The aircraft fuselage of claim 13, wherein the planking exhibits a fire-safe(r) behavior, adjusted to the outer contour of the exterior skin (2).
- 25 15. The aircraft fuselage of claim 14, wherein the planking is realized with a glare material.

16. The aircraft fuselage of one of claims 13 to 15, wherein the exterior skin (2) is realized with a material comprised of an aluminum or aluminum alloy, joined to the burn-through resistant, plate-like planking.